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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/643,015	08/18/2003	Todd S. Emrick	7163	2962

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EXAMINER

FEELY, MICHAEL J

ART UNIT	PAPER NUMBER
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1712

DATE MAILED: 04/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/643,015

Applicant(s)

EMRICK ET AL.

Examiner

Michael J. Feely

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1712

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 03 January 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-12, 14, 15, 18 and 20-23 is/are rejected.
- 7) ☒ Claim(s) 13, 16, 17, 19 and 24-26 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 020405, 020705.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

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## **DETAILED ACTION**

### ***Response to Amendment***

1. The declaration filed on December 13, 2004 under 37 CFR 1.131 is sufficient to overcome the Dubertret et al. reference (Pub. No.: US 2004/0033345).

### ***Previous Claim Rejections - 35 USC § 112***

2. The rejection of claim 13 under 35 U.S.C. 112, second paragraph, has been overcome by amendment.

### ***Previous Claim Rejections - 35 USC § 102***

3. The rejection of claims 1-4, 14, 15, 18, and 20-23 under 35 U.S.C. 102(e) as being anticipated by Dubertret et al. (Pub. No.: US 2004/0033345) has been overcome with an effective declaration filed under 37 CFR 1.131.

### ***Previous Allowable Subject Matter***

4. The allowability of claims 5-12 has been withdrawn.
5. The allowability of claims 13, 16, 17, 19, and 24-26 stands.

### ***Claim Rejections - 35 USC § 112***

6. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

7. Claims 1-5 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for:

*A composite comprising a metallic nanoparticulate substrate component and a polymeric ligand component, wherein said ligand component comprises a nitrogenous coupling moiety between the substrate and the polymeric component,*

does not reasonably provide enablement for:

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*A composite comprising a metallic nanoparticulate substrate component and a polymeric ligand component, wherein said ligand component comprises a nitrogenous coupling moiety and said polymeric component is between the substrate and the coupling moiety.*

The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make the invention commensurate in scope with these claims.

The scope of the instant claim language includes the following structures:

(1) [metallic nano-substrate] – [nitrogenous coupling moiety] – [polymeric ligand component];

and

(2) [metallic nano-substrate] – [polymeric ligand component] – [nitrogenous coupling moiety];

however, the Specification only supports embodiment (1) – *see page 6, lines 12-24 and Figures 1, 2 & 4.*

8. Claims 6-10 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for:

*An emissive nanoparticle composite comprising a CdSe nanoparticle and an ethylene glycol ligand component, said component having a nitrogenous terminus selected from pyridinyl and aminopyridinyl moieties and said nitrogenous terminus is between the nanoparticle and the ethylene glycol ligand,*

does not reasonably provide enablement for:

*An emissive nanoparticle composite comprising a CdSe nanoparticle and an ethylene glycol ligand component, said component having a nitrogenous terminus selected from pyridinyl and aminopyridinyl moieties and said ethylene glycol ligand is between the nanoparticle and the nitrogenous terminus.*

The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make the invention commensurate in scope with these claims.

The scope of the instant claim language includes the following structures:

(1) [nano-particle] – [nitrogenous terminus] – [ethylene glycol ligand]; and

(2) [nano-particle] – [ethylene glycol ligand] – [nitrogenous terminus];

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however, the Specification only supports embodiment (1) – *see page 6, lines 12-24 and Figures 1, 2 & 4.*

9. Claims 14, 15, and 18 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for *a system including a second ligand component having a nitrogenous terminus/coupling moiety*, does not reasonably provide enablement for *a system including a second ligand component without a nitrogenous terminus/coupling moiety*. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make the invention commensurate in scope with these claims. The nitrogenous terminus/coupling moiety is an essential feature of the second ligand component. The Specification fails to describe an operable system using a second ligand component absent of the nitrogenous terminus/coupling moiety.

10. Claims 20-23 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for *a method featuring a second ligand component having a nitrogenous terminus/coupling moiety*, does not reasonably provide enablement for *a method featuring a second ligand component without a nitrogenous terminus/coupling moiety*. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to use the invention commensurate in scope with these claims. The nitrogenous terminus/coupling moiety is an essential feature of the second ligand component. The Specification fails to describe an operable method using a second ligand component absent of the nitrogenous terminus/coupling moiety.

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***Claim Rejections - 35 USC § 102***

11. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

12. Claims 1-5, 11, and 12 are rejected under 35 U.S.C. 102(a) as being anticipated by Billancia et al. (*see entry A7 on IDS dated 2/7/05*).

Regarding claims 1-5, Billancia et al. disclose: **(1)** a composite comprising a metallic nanoparticulate substrate component (p.508: introduction) and a polymeric ligand component (p. 508: introduction), said ligand component comprising a nitrogenous coupling moiety (p. 508: introduction);

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(2) wherein the substrate comprises a nanoparticle selected from CdSe, CdS, CdTe, ZnS, ZnSe, Co and combination thereof (p. 508: introduction);

(3) wherein said nitrogenous moiety is selected from amino, pyridinyl and aminopyridinyl moieties (p. 508: introduction);

(4) wherein said polymeric ligand component is selected from poly(ethylene glycol), poly(hexaethylene glycol), poly(hexadecylethylene glycol), poly( $\epsilon$ -caprolactone), poly(lactide), poly(glycolide), polyglycidyl, polypropylene oxide and combinations thereof (p. 508: introduction); and

(5) wherein said polymeric component comprises poly(ethylene glycol), said component with a terminus comprising a functional group moiety selected from hydroxyl, alkyl, alkoxy, carboxylate, thymine, ammonium salt and substituted ammonium salt moieties (p. 508: introduction).

Regarding claims 11 and 12, Billancia et al. disclose: (11) a polymeric ligand component comprising a poly(ethylene glycol) component (p. 508: introduction) and a first terminus comprising a pyridinyl moiety (p. 508: introduction), said poly(ethylene glycol) component comprising at least 2 ethylene glycol monomers and a second terminus comprising a functional group moiety selected from hydroxy, alkyl, alkoxy, carboxylate, thymine, ammonium salt and substituted ammonium salt moieties (p. 508: introduction); and (12) comprising up to about 100 ethylene glycol monomers (p. 508: introduction).

13. Claims 11 and 12 are rejected under 35 U.S.C. 102(e) as being anticipated by Ekwuribe et al. (US Pat. No. 6,380,405).

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Regarding claims 11 and 12, Ekwuribe et al. disclose: *(11)* a polymeric ligand component comprising a poly(ethylene glycol) component (column 17, lines 1-44) and a first terminus comprising a pyridinyl moiety (column 17, lines 1-44), said poly(ethylene glycol) component comprising at least 2 ethylene glycol monomers and a second terminus comprising a functional group moiety selected from hydroxy, alkyl, alkoxy, carboxylate, thymine, ammonium salt and substituted ammonium salt moieties (column 17, lines 1-44); and *(12)* comprising up to about 100 ethylene glycol monomers (column 17, lines 1-44).

14. Claims 1 and 3 are rejected under 35 U.S.C. 102(e) as being anticipated by Gaw et al. (Pub. No.: US 2003/0124194 A1).

Regarding claims 1 and 3, Gaw et al. disclose: *(1)* a composite comprising a metallic nanoparticulate substrate component (paragraphs 0036, 0046, 0047; Figure 1) and a polymeric ligand component (paragraphs 0036, 0046, 0047; Figure 1), said ligand component comprising a nitrogenous coupling moiety (paragraphs 0036, 0046, 0047; Figure 1); and *(3)* wherein said nitrogenous moiety is selected from amino, pyridinyl and aminopyridinyl moieties (paragraphs 0036, 0046, 0047; Figure 1).

***Allowable Subject Matter***

15. Claims 13, 16, 17, 19, and 24-26 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.



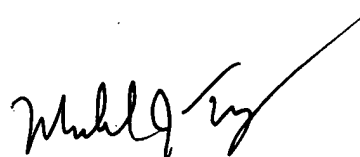
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*Communication*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael J. Feely whose telephone number is 571-272-1086. The examiner can normally be reached on M-F 8:30 to 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski can be reached on 571-272-1302. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Michael J. Feely  
Primary Examiner  
Art Unit 1712

March 30, 2005